UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,912	02/14/2002	Maximilian Fleischer	A35004 (071308.0293)	1712

21003 7590 06/17/2005

BAKER & BOTTS
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER	
SINES, BRIAN J	

ART UNIT	PAPER NUMBER
1743	

DATE MAILED: 06/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/075,912	FLEISCHER ET AL.	
	Examiner	Art Unit	
	Brian J. Sines	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5 and 7-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-14,17-19,22-25,28,30,31 and 33* is/are rejected.

7)☒ Claim(s) *15,16,20,21,26,27,29 and 32* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claims 15, 16, 21, 26 and 27 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Accordingly, claims 15, 16, 21, 26 and 27 have not been further treated on the merits.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 18 recites the limitation "second stage transverse axis sensitivities" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

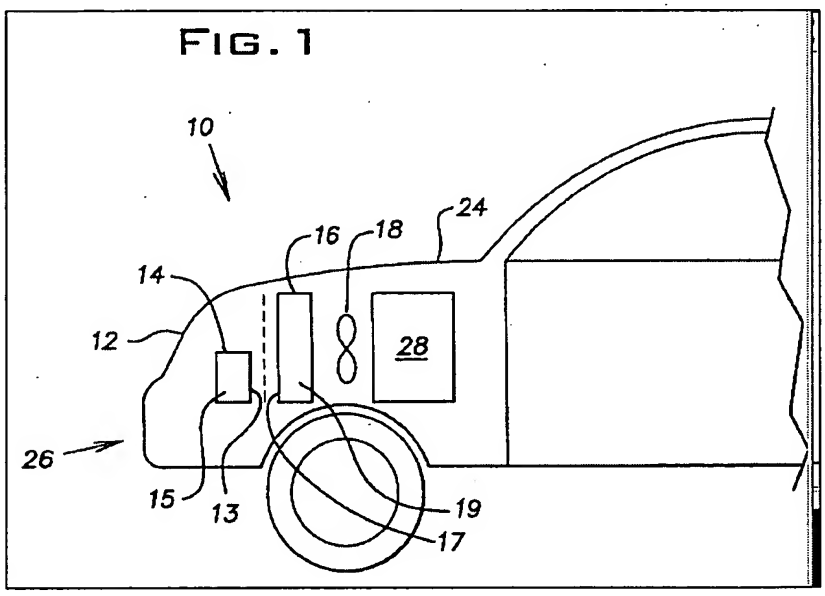
The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 1 – 5, 7, 9 – 12, 17, 19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al. (U.S. Pat. No. 6,506,605 B1) in view of Frank et al. (DE 19924083 A1) and Kasahara et al. (U.S. Pat. No. 4,885,929). Allen et al. teach a system for sensing catalyst coating loss and efficiency. Allen et al. specifically teach that the efficiency of the disclosed ozone-depleting or conversion system can be directly measured by sensing the ozone concentration in atmospheric air upstream and downstream of the heat exchange surface, such as an air conditioner condenser (14) and radiator (16), which is coated with an ozone-depleting catalyst (see col. 8, lines 1 – 4; col. 10, lines 6 – 12; figure 1).



Allen et al. is silent to the specific type of heated conductivity sensor utilized and monitoring system as claimed. Frank et al. do teach electrically-heated conductivity sensors for the detection of ozone (see Abstract). Hence, as evidenced by Frank et al., a person of ordinary

skill in the art would have recognized the suitability of using an electrically-heated conductivity sensor for detecting ozone (see MPEP § 2144.07). In addition, these sensor systems disclosed by Frank et al., which rely on an electrical measurement response, are well known in the art to incorporate a monitoring means for monitoring the measured concentration (see MPEP § 2144.03). Furthermore, a person of ordinary skill in the art would accordingly have had a reasonable expectation of success of utilizing the heated conductivity sensors disclosed by Frank et al. with the diagnostic system disclosed by Allen et al. for monitoring ozone. The Courts have held that the prior art can be modified or combined to reject claims as *prima facie* obvious as long as there is a reasonable expectation of success. See *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986) (see MPEP § 2143.02). In addition, the Courts have held that the mere duplication of parts, without any new or unexpected results, is within the ambit of one of ordinary skill in the art. See *In re Harza*, 124 USPQ 378 (CCPA 1960) (see MPEP § 2144.04). Therefore, it would have been obvious to a person of ordinary skill in the art to incorporate a plurality of the electrically-heated conductivity sensors disclosed by Frank et al. with the system of Allen et al. in providing for the claimed diagnostic system for effectively monitoring ozone depletion.

Neither Allen et al. nor Frank et al. specifically teach the incorporation of a gas-permeable inlet membrane. Kasahara et al. teach an ozone detection system comprising a gas-permeable membrane (16) (see col. 7, lines 37 – 46; figure 10). Hence, as evidenced by Kasahara et al., a person of ordinary skill in the art would accordingly have had a reasonable expectation for success of incorporating the use of a gas-permeable membrane with an ozone detection system. The Courts have held that the prior art can be modified or combined to reject

claims as *prima facie* obvious as long as there is a reasonable expectation of success. See *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986) (see MPEP § 2143.02). Therefore, it would have been obvious to a person of ordinary skill in the art to incorporate the use of a housing having a gas-permeable inlet membrane with a sensor system utilized for detecting ozone. Regarding claim 7, Kasahara et al. teach that the gas-permeable membrane comprises Teflon, which is well known in the art to comprise polytetrafluoroethylene (see col. 7, lines 37 – 46). Furthermore, regarding claim 9, it would have been obvious to a person of ordinary skill in the art to incorporate a plurality of inlet membranes with the apparatus.

Regarding claims 2, 19 and 22, Frank et al. indicate that the ozone sensors have an operating temperature in the range of about 500 °C to about 700°C (see figures 5 & 6). Regarding claims 3 and 4, Frank et al. teach that the sensor comprises gallium oxide and indium oxide (see Abstract). Regarding claim 5, Allen et al. teach the incorporation of a catalytic element comprising a motor vehicle radiator (16) (see col. 8, lines 1 – 4; figure 1). Regarding claim 10, Allen et al. teach the incorporation of evaluation electronics (e.g., 64) and the sensor elements located in a common housing (24) (see col. 4, line 64 – col. 5, line 6; col. 9, lines 8 – 14; col. 16, lines 45 – 67; figures 7A, 7B & 10A – 10C). Regarding claim 11, Allen et al. anticipate that the sensor data is transmitted to an engine management or operating system (see col. 1, lines 1 – 22). Regarding claim 12, Frank et al. does indicate that the disclosed sensors are electrically-heated during use and operated at a constant temperature, such as 600 °C, as indicated in figures 5 & 6(see Abstract; figures 5 & 6). Therefore, it is considered inherently anticipated that the plurality of sensors would at least be maintained at the same operating temperature during the measurement process (see MPEP § 2112).

2. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al. in view of Frank et al. and Kasahara et al., as applied to claims 1 – 5, 7, 9 – 12, 17, 19 and 22 above, and further in view of Kramer et al. (U.S. Pat. 5,215,554 A). Neither Allen et al., Frank et al. nor Kasahara et al. specifically teach the incorporation of gas-permeable membranes comprising of porous hollow fibers. Kramer et al. teach gas-permeable membranes comprising of porous hollow fibers (see col. 2, lines 18 – 63). The Courts have held that the selection of a known material, which is based upon its suitability for the intended use, is within the ambit of one of ordinary skill in the art. See *In re Leshin*, 125 USPQ 416 (CCPA 1960) (see MPEP § 2144.07). Therefore, it would have been obvious to a person of ordinary skill in the art to utilize a gas-permeable membrane comprising a fiber material.

3. Claims 13, 14, 23 – 25, 28, 30, 31 & 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al. in view of Frank et al. and Kasahara et al., as applied to claims 1 – 5, 7, 9 – 12, 17, 19 and 22 above, and further in view of Reitmeier et al. (U.S. Pat. 5,889,198 A). Neither Allen et al., Frank et al. nor Kasahara et al. specifically teach operating temperature methodology as recited in the instant claims. Reitmeier et al. teach the use of a varying operating temperature methodology with a gallium oxide film sensor in order to obtain accurate gas concentration measurements (see col. 2, line 30 – col. 3, line 46). Hence, as evidenced by Reitmeier et al., a person of ordinary skill in the art would have had a reasonable expectation for success in using the methodology disclosed by Reitmeier et al. with a gallium oxide gas sensor. Therefore, it would have been obvious to a person of ordinary skill in the art to utilized the claimed methodology with the detection system taught by the prior art. Frank et al. indicate that

the ozone sensors have an operating temperature in the range of about 500 °C to about 700°C (see figures 5 & 6).

Allowable Subject Matter

1. The indicated allowability of claims 6 – 9, 13, 14, 16 – 18, 23 – 25, 28, 30, 31 & 33 is withdrawn in view of the newly discovered reference(s).

2. Claims 20, 29 & 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 20 & 32, the cited prior art neither teach nor fairly suggest a method further comprising the step of balancing the characteristics of each sensor with one another.

Regarding claim 29, the cited prior art neither teach nor fairly suggest that the claimed methodology incorporate the step of reducing the operating temperature in the second stage in order to reduce transverse axis sensitivities.

Response to Arguments

1. Regarding the rejection of claims 23 – 25 & 28 – 33 under 35 U.S.C. 112, second paragraph, applicant's arguments, filed 3/17/2005, have been fully considered and are persuasive. This rejection has been withdrawn.

2. Regarding the rejection of claims 1 – 5, 10 – 12, 19 & 22 under 35 U.S.C. 103(a) as being unpatentable over Allen et al. in view of Frank et al., applicant's arguments with respect to this rejection have been considered, but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Sines, Ph.D. whose telephone number is (571) 272-1263. The examiner can normally be reached on Monday - Friday (11 AM - 8 PM EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).